

1 APPLICATION FOR UNITED STATES LETTERS PATENT

2 ON INVENTION FOR:

3 BOTTLED WATER SOURCE TO SOFT DRINK DISPENSER MACHINE

4 BY INVENTOR: Robert J. Noiseux

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6 Agt. Doc. No.: NOIR44B

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9 REGISTERED PATENT AGENT

10 12 PARKSIDE DRIVE

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14 TO ALL WHOM IT MAY CONCERN:

15 BE IT KNOWN that I, Robert J. Noiseux, a citizen of
16 THE UNITED STATES OF AMERICA and resident of: Canterbury, CT
17 06331 have invented certain new and useful improvements in
18 a(n): BOTTLED WATER SOURCE TO SOFT DRINK DISPENSER MACHINE
19 of which the following is a full, clear, concise and exact
20 description:

1 Inventor: Robert J. Noiseux
2 Invention: BOTTLED WATER SOURCE TO SOFT DRINK DISPENSER MACHINE
3 DOC. No.: NOIR44B

4 BACKGROUND OF THE INVENTION

5 Field of the Invention:

6 The present invention relates to a water dispensing apparatus for
7 providing an auxiliary supply of water to soft drink dispensing machines,
8 ice maker etc., when water quality from a usual supply, such as city
9 water, is of unacceptable quality.

10 Description of the Prior Art:

11 Numerous proposal for innovations for water dispensing apparatus
12 have been provided in the prior art that will be described. Even though
13 these innovations may be suitable for the specific individual purposes to
14 which they address, accordingly they differ from the present invention.

15 A FIRST EXAMPLE U.S. Patent No. 3,653,413 to Sheya teaches a pump
16 apparatus that is an economic and trouble-free apparatus for pumping
17 drinking water from a source bottle positioned on the floor, where it is
18 delivered, to an elevated vessel from which it can gravitationally flow.
19 The apparatus comprises a centrifugal or other non-self priming pump which
20 can be set directly on the mouth of the source bottle on the floor. A
21 pump suction pipe extends into the source bottle. An elastomeric
22 spheroidal squeeze bulb is serially connected to the pump, directly in its
23 output line. Check valves are positioned on opposite sides of the squeez
24 bulb, with the suction check valve preferably on the input side of the
25 pump. Manual squeezing of the bulb primes the pump. A flexible hose from
26 the squeeze bulb discharges the water to the elevated bottle.

27 Since the elevated vessel has a filling opening in the top and a
28 discharge opening in the bottom, means are provided to close the bottom

1 opening during filling to prevent the water from running directly out.
2 This is alternatively accomplished by means of a float valve or by means
3 of a manually operated valve which is closed during the filling operation.

4 A SECOND EXAMPLE U.S. Patent No. 4,456,149 to Sciortino teaches an
5 invention that relates to portable apparatuses for dispensing purified
6 water from conventional five gallon water bottles directly into a spigot
7 mounted on a sink or an ice maker of a refrigerator. The bottle of water
8 does not have to be mounted on any known support or cabinet, but can
9 remain in its upright position. The water is pumped directly from the
10 bottle through a flexible tube upon drop in pressure in the transport
11 line. A sensing mechanism detects this drop in pressure when the spigot
12 is open and activates a motor which drives the pump. Second pressure
13 switch de-activates the pump when the water runs out of the bottle to
14 prevent overheating of the motor. The pump then has to be manually reset.
15 A time release is provided when it is desired to connect the bottle to an
16 ice maker, so that the pump continuously operates for several minutes to
17 fill in the ice maker and then automatically stops.

18 A THIRD EXAMPLE U.S. Patent No. 4,844,796 to Plester teaches a water
19 treatment apparatus for use in a post-mix beverage dispenser that enables
20 purification of water, removal of water hardness and sterilization of
21 water which is normally accomplished by a precipitation/flocculation
22 process used in a bottling plant. This apparatus can treat the water for
23 beverage dispensing purposes and will not require high capital
24 expenditures. The apparatus includes a removable, disposable cartridge
25 having a reactor or first section filled with sand, carbon granules or
26 other heat-conducting material for removing the bicarbonate content and
27 other impurities from the water and a filter or second section having a
28 filter and activated carbon screen for removing solids, traces of chlorine
29 and dissolved organic material from the water. The apparatus also
30 includes heat exchanger coils and a heating element for raising the
31 temperature of the water as well as a holding tank having a gas trap for
32 collecting and removing carbon dioxide and chlorine gas. Various

1 arrangements may also be used in the apparatus to lower the temperature of
2 the water after it has been raised and before it reaches a downstream
3 dispensing portion. An ion-exchange resin may also be included in the
4 second section of the cartridge of the apparatus in order to remove
5 nitrates, sulfates and sodium ions from the water.

6 A FOURTH EXAMPLE U.S. Patent No. 4,946,599 to Craig teaches
7 apparatus and methods for converting a bottled water dispenser for use
8 with a continuous source of water are disclosed. In a preferred
9 embodiment, means for reducing the pressure and filtering the continuous
10 source of water are provided. In a most preferred embodiment, the
11 apparatus is configured to substantially reside within the existing
12 dispenser apparatus, thus eliminating the need for bottled water. A
13 housing is provided which contains a filter in an upper portion thereof,
14 the lower portion shaped to conform to an existing tank within the bottled
15 water dispenser in order to provide good thermal communication between the
16 apparatus of the present invention and the existing refrigeration means.
17 Chilled water is retained in the lower portion of the housing and is
18 filtered upon demand, thus providing freshly filtered water to the user at
19 a pressure and velocity substantially the same as that produced using a
20 bottled source, without the contaminants expense and inconvenience
21 associated with bottled water. Also provided are methods and apparatus
22 for converting bottled water dispensers having means for dispensing heated
23 water for use with a continuous source of water.

24 A FIFTH EXAMPLE U.S. Patent No. 4,947,739 to Owen teaches a home
25 carbonation system for producing soft drinks. A high pressure CO₂ vessel
26 comprises a regulator valve assembly which provides fail safe venting, a
27 refill capability, and a low pressure output. It may be interconnected
28 via a fill hose to a seltzer dispenser comprising a multifunction
29 discharge valve secured to a plastic bottle. A plurality of syrup
30 bottles, each filled with a different flavor of concentrate, enable the
31 mixing of desired soda flavors. A storage rack efficiently houses the
32 pressure vessel, the seltzer bottle, and the individual syrup containers.

1 A pressure vessel housing box includes an offset nest which conveniently
2 stores the fill tube. The seltzer bottle is reinforced by a two-piece,
3 vented, anti-fragmentation shroud equipped with inspection slots for
4 enabling proper mixing. The discharge valve is threadably coupled to the
5 bottle, and it includes a gas inlet orifice for receiving low pressure gas
6 from the regulator assembly. Charging gas admitted into the discharge
7 valve is conducted beneath the liquid level by an internal siphon tube,
8 and the vigorous bubbling which results invisible through the inspection
9 slots. The discharge valve, which need not be removed from the bottle for
10 subsequent dispensing of charged water, includes a manually operated lever
11 adapted to trigger its internal valve elements for dispensing fluid from
12 the seltzer bottle through an adjacent output tube, which vigorously
13 squirts charged water into the awaiting users' glass.

14 A SIXTH EXAMPLE U.S. Patent No. 5,901,880 to Clarke teaches a
15 bottled water delivery system that includes a pump which moves water from
16 within a bottle to a desired output location. The system is such that
17 heavy water bottles need not be moved and may be located at a significant
18 preselected distance from the output location. A controller is provided
19 to keep the pump from being actuated when there is no water available for
20 pumping. The system is easily installed, inexpensive due to its
21 simplicity, and requires a minimal input of power for operation.

22 A SEVENTH EXAMPLE U.S. Patent No. 5,979,713 to Grill teaches an
23 improved tap assembly including a tap, a delivery tube, and a rotatable
24 cam for selectively compressing or not compressing a resilient flow
25 control portion of the delivery tube in order to block or allow fluid flow
26 therethrough. Also included is a decompression device for positively
27 ensuring unrestricted flow through the resilient flow control portion when
28 the cam is rotated to its opened position. The dispensed fluid may be
29 pressurized by premixing with another fluid supplied by a manifold. The
30 manifold is adapted to be connected to multiple pressurized sources of the
31 another fluid. A diffuser is provided upstream of the flow control
32 portion in order to effectively condition the dispensed fluid desired

1 characteristics such as reduced velocity, laminar flow, and appearance.
2 The tap and manifold have matingable piloting members for easily guiding
3 these components together in correct relation for a snap assembly. The
4 tap assembly may dispense, for example, pressurized liquid beverages such
5 as beer, wine, soft drinks, and the like. The subject invention may also
6 be used to dispense non-pressurized liquids such as intravenously-fed
7 medicine, food or nutrients, and the like.

1

SUMMARY OF THE INVENTION

2 AN OBJECT of the present invention is to provide a water dispensing
3 apparatus for providing an auxiliary supply of water that avoids the
4 disadvantages of the prior art.

5 ANOTHER OBJECT of the present invention is to provide a water
6 dispensing apparatus for providing an auxiliary supply of water that is
7 simple and inexpensive to manufacture.

8 STILL ANOTHER OBJECT of the present invention is to provide a water
9 dispensing apparatus for providing an auxiliary supply of water that is
10 simple to use.

11 According to one aspect, the invention provides a water dispensing
12 apparatus for providing an auxiliary supply of water to a consumer when a
13 city water source becomes unacceptable. Valve means connect,
14 alternatively, one of a city water supply line and an auxiliary water
15 supply line to a consumer water supply line. A water accumulator is
16 connected to the auxiliary water supply line to supply water thereto; an
17 auxiliary water supply reservoir is connected to the water accumulator; an
18 electric pump is connected between the auxiliary water supply reservoir
19 and the water accumulator for pumping water from the auxiliary water
20 supply to the water accumulator; and, means are provided for sensing a
21 water pressure output from the water accumulator and for electrically
22 connecting the electric pump to a power source in response to the pressure
23 detected falling below a predetermined value. When water the city water
24 supply line becomes unacceptable, the valve means can be operated to
25 disconnect the city water supply line from the consumer water line and to
26 connect the auxiliary water supply line to the consumer water line so that
27 water is supplied thereto from the water accumulator and when the water
28 pressure output from the water accumulator falls below a predetermined
29 value, the pressure switch operates to connect the electric pump to a
30 power source to pump water from the auxiliary water supply reservoir to
31 replenish the water accumulator.

1 Preferably, a check valve is inserted in the auxiliary water supply
2 line downstream of the electric pump and upstream of the pressure switch.

3 Switching means for detecting a level of water in the auxiliary
4 water supply reservoir is electrically connected in series with the
5 electric pump so that when the level of water in the auxiliary water
6 supply reservoir falls below a predetermined value, the switching means
7 cuts off electrical power to the electric pump to prevent water being
8 pumped from the auxiliary water supply reservoir to the water accumulator.

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10 In one version the water accumulator is replenished and returns
11 water through the same connection to the auxiliary water supply line
12 affording simplicity of assembly.

13 The novel features which are considered characteristic of the
14 present invention are set forth in the appended claims. The invention
15 itself, however, both as to its construction and its method of operation,
16 together with additional objects and advantages thereof, will be best
17 understood from the following description of the specific embodiments when
18 read and understood in connection with the accompanying drawing.

1

BRIEF DESCRIPTION OF THE DRAWING

2 The single figure of the drawing is briefly described as follows:

3 Figure 1 is a block diagram illustrating the present invention and
4 showing the relationship and connections between its component
5 parts and external inputs and outputs.

1 A MARSHALLING OF REFERENCE NUMERALS UTILIZED IN THE DRAWING

- 2 10 water dispensing apparatus
3 12 two way valve
4 14 city water supply line
5 16 auxiliary water supply line
6 18 auxiliary water supply reservoir
7 20 consumer water supply line
8 22 water accumulator
9 24 small positive displacement pump
10 26 electric motor
11 27 check valve
12 28 pressure switch
13 30 low water level detector
14 32 switch

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

2 As shown in the drawing, a water dispensing apparatus 10 comprises
3 a two way valve 12 having ports switchable between a city water supply
4 line 14 and an auxiliary water supply line 16 to an auxiliary water supply
5 reservoir 18, such as a bottle or auxiliary water tank, to supply water to
6 a consumer water supply line 20 connected to a consumer's soft drink
7 dispensing machine, ice maker etc.

8 The auxiliary water supply line 16 connects to a water accumulator
9 22 replenished from the auxiliary water supply reservoir 18 by a small
10 positive displacement pump 24 powered by an electric motor 26 via check
11 valve 27 in response to closure of a pressure switch 28 operatively
12 connected to auxiliary water supply line 16 and the motor power circuit.

13 When the quality of the city water becomes unacceptable, the two way
14 valve 12 is operated switched (manually or electrically) from the city
15 water supply line 14 to the auxiliary water supply line 16 to feed water
16 from the water accumulator 22 via the auxiliary water supply line 16 to
17 consumer water supply line 20. When the pressure switch 28 detects a low
18 pressure in the auxiliary water supply line 16 indicative of a low water
19 level in the water accumulator 22 it closes, connecting the electric motor
20 26 to the small positive displacement pump 24 to pump water from the
21 auxiliary water supply reservoir 18 to replenish the water accumulator 22.

22 A low water level detector 30 associated with the auxiliary water
23 supply reservoir 18 operates a switch 32 wired in series with the electric
24 motor 26 to cut the power supplied to the electric motor 26 when the water
25 level of the auxiliary water supply reservoir 18 falls below a
26 predetermined level to prevent air being pumped into the auxiliary water
27 supply line 16.